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SIGNWALLING: SIGNALS DERIVED FROM ARABIDOPSIS CELL WALL ACTIVATE SPECIFIC RESISTANCE TO PATHOGENS

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The cell wall is a dynamic structure that regulates both constitutive and inducible plant defence responses. Different molecules o DAMPs (damage-associated molecular patterns) can be released from plant cell walls upon pathogen infection or wounding and can trigger immune responses. To further characterize the function of cell wall on the regulation of these immune responses, we have performed a biased resistance screening of putative/well-characterized primary/secondary *Arabidopsis thaliana* cell wall mutants (*cwm*). In this screening we have identified more than 20 *cwm* mutants with altered susceptibility/resistance to at least one of the following pathogens: the necrotrophic fungi *Plectosphaerella cucumerina*, the vascular bacterium *Ralstonia solanacearum*, the biotrophic oomycete *Hyaloperonospora arabidopsidis* and the powdery mildew fungus *Erisyphe cruciferarum*. We found that cell wall extracts from some of these *cwm* plants contain novel DAMPs that activate immune responses and conferred enhanced resistance to particular pathogens when they were applied to wild-type plants. Using glycomic profiling we have performed an initial characterization of the active carbohydrate structures present in these *cwm* wall fractions, and we have determined the signalling pathways regulated by thesse fractions. . The data generated with this collection of wall mutants support the existence of specific correlations between cell wall structure/composition, resistance to particular type of pathogens and plant fitness. Remarkably, we have identified specific *cwm* mutations that uncoupled resistance to pathogens from plant trade-offs, further indicating the plasticity of wall structures in the regulation of plant immune responses.